

ABSTRACT OF THE DISCLOSURE

Lands and Cu wirings are formed on surfaces of a glass epoxy substrate, and a solder mask is formed on the lands and the Cu wirings to form a chip-mounting substrate. A bottom
5 surface of the chip-mounting substrate is made rough, and a semiconductor chip is mounted on a top surface of the chip-mounting substrate. Through holes communicating with the Cu wirings are formed on the solder mask to expose the Cu wirings. Solder balls are formed on the Cu wrings by thermal compression
10 welding. Underfill material is injected into a clearance formed between the chip mounting substrate and a printed circuit board. Since the surface of the chip-mounting substrate is made rough, an area of a contact surface between the chip-mounting substrate and underfill material increases, hence an adhesive
15 strength between the chip-mounting substrate and the printed circuit board is heightened.

TOP SECRET